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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/430,225	10/29/1999	LUCA CARDELLI	1018.029US1	6952

27195   7590   02/11/2004

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EXAMINER
DAY, HERNG DER

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>06 November 2003</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-19</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12 / Nov. 6, 2003</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is in response to Applicants' Reply (paper # 13) to Office Action

dated May 5, 2003 (paper # 11), mailed November 3, 2003, and received by PTO November 6,

2003.

1-1.   Claims 9 and 13 have been amended; claims 1-19 are pending.

1-2.   Claims 1-19 have been examined and claims 1-19 have been rejected.

Drawings

2.   Three replacement sheets including figures 1, 3, and 4, received by PTO on November 6,

2003, are acceptable. The objection to the drawings has been withdrawn.

Specification

3.   The amendment filed November 6, 2003, is objected to under 35 U.S.C. 132 because it

introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall

introduce new matter into the disclosure of the invention. All the amendments to the

specification as described at page 3 of paper # 13 introduce new matter because they do not

appear to have support in the original disclosure. Please see section **16-1** below for details.

Applicants are required to cancel the new matter in the reply to this Office Action or to

show the support in the original specification to possibly overcome this objection.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

First, many operations and functions are used but not defined and disclosed in the specification. For example, *Head* in line 8 of page 37, and *Next* in line 3 of page 39. Therefore, without undue experimentation, it is unclear for one skilled in the art how to make and/or use these undefined operations or functions in "analyzing" or to "analyze" as claimed in all the independent claims.

Next, many expressions disclosed in the specification are either incomplete or incorrect. For example, ($\Box$K) in line 7 of page 28, Corollaries (2) in line 29 of page 29, *Check* (P, A|B) in line 5 of page 34, and *Check* (P,, A) in line 8 of page 35. Also note, the P'' as described in the Fact in line 11 of page 19 has not been defined. Therefore, without undue experimentation, it is unclear for one skilled in the art how to make and/or use these incomplete or incorrect expressions in "analyzing" or to "analyze" as claimed in all the independent claims.

6.   Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventors, at the time the application was filed, had possession

of the claimed invention.

For example of written description issue, the insertions of new symbols, as described in

page 23 of paper # 9, are not supported by the original specification because both Sequent and

Satisfaction relation are represented by a space " " in the original specification. In many

situations, the original specification does not provide enough information such that one skilled in

the art knows where and which symbol should be inserted without undue experimentation.

Next, the symbol substitutions of certain occurrence for other symbols, as described in

page 23 of paper # 9 and page 3 of paper # 13, are not supported by the original specification

neither. For example, the symbol @ used in the original specification has been defined with

different meaning at different place, as admitted in page 23 of paper # 9, is one more example of

written description issue.

Without support by the original specification, the inserting and substituting symbols

constitute new matter and cause the rejections under 35 U.S.C. 112, first paragraph.

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

8.   Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

8-1.   Claim 9 recites the limitation "the process" in lines 3-6 of the claim. There is insufficient

antecedent basis for this limitation in the claim because the limitation "a process" appeared in

line 2 of the claim is used to execute the stored instructions. At least, a "process" executing the

stored instructions has difficulty in "inputting" itself.

8-2.   Claims 10-12 are rejected as being dependent on the rejected claim 9.

8-3.   Claim 13 recites the limitation "the process" in lines 3-13 of the claim. There is

insufficient antecedent basis for this limitation in the claim because the limitation "a process"

appeared in line 2 of the claim is used to execute the stored instructions. At least, a "process"

executing the stored instructions has difficulty in "recursively analyzing" itself.

Claim Rejections - 35 USC § 101

9.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

10.   Claims 1-19 are rejected under 35 U.S.C. 101 because the claimed invention is not

concrete, useful, and tangible. In other words, Applicants have not claimed a practical

application.

10-1.   An invention, which is eligible for patenting under 35 U.S.C. § 101, is in the "useful arts"

when it is a machine, manufacture, process or composition of matter, which produces a concrete,

tangible, and useful result. *The fundamental test for patent eligibility is thus to determine*

whether the claimed invention produces a "useful, concrete and tangible result." The test for

practical application as applied by the examiner involves the determination of the following

factors:

(1) "Useful" - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at

the claimed invention as a whole and compare any asserted utility with the claimed invention to

determine whether the asserted utility is accomplished. Applying utility case law the examiner

will note that:

>(a) the utility need not be expressly recited in the claims, rather it may be inferred.

>(b) if the utility is not asserted in the written description, then it must be well

established.

Furthermore, although the claims are interpreted in light of the specification, limitations

from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

USPQ2d 1057 (Fed. Cir. 1993).

(2) "Tangible" - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir.

1994), the examiner will determine whether there is simply a mathematical construct claimed,

such as a disembodied data structure and method of making it. If so, the claim involves no more

than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In

Warmerdam the abstract idea of a data structure became capable of producing a useful result

when it was fixed in a tangible medium which enabled its functionality to be realized.

(3) "Concrete" - Another consideration is whether the invention produces a "concrete"

result. Usually, this question arises when a result cannot be assured. An appropriate rejection

under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the

invention cannot operate as intended without undue experimentation.

10-2. The Examiner respectfully submits, under current PTO practice, that the claimed

invention does not recite a concrete, useful, and tangible result. Please see section **16-3** below

for details.

10-3. The Examiner acknowledges that even though the claims are presently considered non-

statutory they are additionally rejected below over the prior art. The Examiner assumes the

Applicants will amend the claims to overcome the 101 rejections and thus make the claims

statutory.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 1-4, 6-7, 9-10, 12, 14-16, and 18-19 are rejected under 35 U.S.C. 102(a) as being

anticipated by Stanski et al., "Expressing Dynamics of Mobile Agent Systems Using Ambient

Calculus", Proceedings of Ninth International Workshop on Database and Expert Systems

Applications, August 1998, pages 434-439.

12-1. Regarding claim 1, Stanski et al. disclose a computer-implemented method operable on a

process, the method comprising:

analyzing the process (agent, section 3.1, paragraph 2) against a formula (server policy,

section 3.1, paragraph 2) using a predetermined modal logic based on ambient calculus (ambient

calculus, section 2.3) to determine whether the process satisfies the formula; and,

outputting whether the process satisfies the formula (decide, section 3.1, paragraph 2).

12-2. Regarding claim 2, Stanski et al. further disclose analyzing the process comprises

analyzing the process in a recursive manner (decide a version among N versions, section 3.1,

paragraph 2).

12-3. Regarding claim 3, Stanski et al. further disclose analyzing the process comprises

normalizing the process to determine whether the process comprises only a single element (an

agent, section 3.1, paragraph 2).

12-4. Regarding claim 4, Stanski et al. further disclose analyzing the process comprises

partitioning the process to determine whether each component of the process satisfies the

formula (N versions, section 3.1, paragraph 2).

12-5. Regarding claim 6, Stanski et al. further disclose analyzing the process comprises

analyzing each sublocation of the process against the formula (ambient nesting, section 2.3,

paragraph 4; therefore, nested locations).

12-6. Regarding claim 7, Stanski et al. further disclose analyzing the process comprises

analyzing a spatial reach of the process against the formula (moves, section 2.3, paragraph 3).

12-7. Claim 9 is a machine-readable medium claim includes same method limitations as in

claim 1 and is anticipated using the same analysis of claim 1.

12-8. Claim 10 is a machine-readable medium claim includes same method limitations as in

claims 2-3 and is anticipated using the same analysis of claims 2-3.

12-9. Claim 12 is a machine-readable medium claim includes same method limitations as in

claims 6-7 and is anticipated using the same analysis of claims 6-7.

12-10. Claim 14 is a system claim includes same method limitations as in claims 1-2 and is

anticipated using the same analysis of claims 1-2.

12-11. Claims 15-16 and 18-19 are system claims include same method limitations as in claims

3-4 and 6-7 and are anticipated using the same analysis of claims 3-4 and 6-7.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 5, 8, 11, 13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Stanski et al., "Expressing Dynamics of Mobile Agent Systems Using Ambient Calculus",

Proceedings of Ninth International Workshop on Database and Expert Systems Applications,

August 1998, pages 434-439, in view of Applicants' disclosure of "a unification algorithm".

14-1. Regarding claim 5, Stanski et al. fail to expressly disclose analyzing the process

comprises determining a plurality of names of the process, and verifying that a name exists for

the formula that is unequal to any of the plurality of names.

Applicants disclose, "a unification algorithm, as known within the art, can be used to

effectuate the check", as described in page 34 of the original specification.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the teachings of Stanski et al. to incorporate the teachings of Applicants to

obtain the invention as specified in claim 5 because a well known unification algorithm saves

software developing cost.

14-2. Regarding claim 8, Stanski et al. disclose a computer-implemented method comprising:

recursively analyzing a process (agent, section 3.1, paragraph 2) against a formula (server

policy, section 3.1, paragraph 2) using a predetermined modal logic based on ambient calculus

(ambient calculus, section 2.3) comprising:

normalizing the process to determine whether the process comprises only a single element (an agent, section 3.1, paragraph 2);

partitioning the process to determine whether each component of the process satisfies the formula (N versions, section 3.1, paragraph 2);

determining a plurality of names of the process, and verifying that a name exists for the formula that is unequal to any of the plurality of names;

analyzing each sublocation of the process against the formula (ambient nesting, section 2.3, paragraph 4; therefore, nested locations);

analyzing a spatial reach of the process against the formula (moves, section 2.3, paragraph 3); and,

outputting whether the process satisfies the formula (decide, section 3.1, paragraph 2).

However, Stanski et al. fail to expressly disclose determining a plurality of names of the process, and verifying that a name exists for the formula that is unequal to any of the plurality of names.

Applicants disclose, "a unification algorithm, as known within the art, can be used to effectuate the check", as described in page 34 of the original specification.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stanski et al. to incorporate the teachings of Applicants to obtain the invention as specified in claim 8 because a well known unification algorithm saves software developing cost.

14-3.   Regarding claim 11, Stanski et al. further disclose the medium of claim 9, wherein recursively analyzing the process comprises:

partitioning the process to determine whether each component of the process satisfies the

formula (N versions, section 3.1, paragraph 2);

However, Stanski et al. fail to expressly disclose determining a plurality of names of the

process, and verifying that a name exists for the formula that is unequal to any of the plurality of

names.

Applicants disclose, "a unification algorithm, as known within the art, can be used to

effectuate the check", as described in page 34 of the original specification.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the teachings of Stanski et al. to incorporate the teachings of Applicants to

obtain the invention as specified in claim 11 because a well known unification algorithm saves

software developing cost.

14-4. Claim 13 is a machine-readable medium claim includes same method limitations as in

claim 8 and is unpatentable using the same analysis of claim 8.

14-5. Claim 17 is a system claim includes same method limitations as in claim 5 and is

unpatentable using the same analysis of claim 5.

Applicants' Arguments

15. Applicants argue the following:

15-1. (1) II. Objection to the Specification. "the amendments in the subject paragraphs do not

add matter involving a departure from or an addition to the original specification. Instead, the

amendments clarify and complete the specification by curing errors" and "such errors would

have been obvious to one of ordinary skill in the art of ambient calculus-based on modal logics at

the time of the invention" (pages 9-12, paper # 13).

To support the above arguments, Applicants also refer to two non-prior art documents

(Cite No. A and Cite No. B), in Supplemental IDS (paper # 12), filed November 3, 2003.

15-2.   (2) III. <u>Rejection of Claims 1-19 Under 35 U.S.C. §112</u>. "The specification has been

amended herein to further cure typographical errors that would have been obvious to one skilled

in the relevant art at the time of the invention" and "because ambient calculus-based on modal

logics would have been known to one of ordinary skill in the art at the time of the invention,

detailed definitions are not required" (page 12, paper # 13).

15-3.   (3) IV. <u>Rejection of Claims 1-19 Under 35 U.S.C. §112</u>. "Regarding curing errors

obvious to one skilled in the relevant art at the time of the invention, this rejection should be

withdrawn" (pages 12-13, paper # 13).

15-4.   (4) V. <u>Rejection of Claims 9-13 Under 35 U.S.C. §112</u>. "The rejection of independent

claims 9 and 13 (and claims 10-12, which depend therefrom) should be withdrawn in view of the

amendments to independent claims 9 and 13" (page 13, paper # 13).

15-5.   (5) VI. <u>Rejection of Claims 1-19 Under 35 U.S.C. §101</u>. "the application of applying the

process against the formula (wherein both can be represented in modal logic based on ambient

calculus) produces a result with a meaning that can indicate whether the move is permissible and

that can be utilized to allow the move. Therefore, the result is useful, concrete and tangible,

pursuant §101" (pages 13-14, paper # 13).

15-6.   (6) VII. <u>Rejection of Claims 1-4, 6-7, 9-10, 12, 14-16 and 18-19 Under 35 U.S.C.</u>

<u>§102(a)</u>. "Stanski, et al., does not describe, teach or suggest employing an ambient calculus-

based on modal logics model checking technique to analyze whether a process satisfies a

formula" and "the analysis can be summarized via the following ambient calculus-based on

modal logics model checking theorem" (pages 15-16, paper # 13).

15-7.   (7) VIII. Rejection of Claims 5, 8, 11, 13, and 17 Under 35 U.S.C. §103(a). "Stanski, et

al., does not teach or suggest the invention as claimed in independent claims 8 and 13" and "the

known 'unification algorithm' disclosed in the subject application (that can be utilized in

connection with the invention) does not make up for the aforementioned deficiencies of Stanski,

et al." (page 16, paper # 13).

Response to Arguments

16.   Applicants' arguments have been fully considered but they are not persuasive.

16-1.   Response to Applicants' arguments (1)-(3). The Examiner respectfully disagrees with the

Applicants' arguments because the details of ambient calculus-based on modal logics do not

appear to have been disclosed to public at the time of the invention. Cite No. A document is

dated June 8, 1999, which is later than the claimed provisional priority dates. Accordingly, the

satisfaction relation, for example, does not appear to be obvious to one skilled in the relevant art

at the time of the invention. Cite No. B document neither discloses satisfaction relation nor

provides correcting information regarding incomplete or incorrect expressions as mentioned in

section 5 above.

Therefore, the Examiner respectfully submits that at least some of the so-called

typographical errors, for example, missing symbols, are not obvious to one skilled in the relevant

art at the time of the invention. In other words, although the amendments may "clarify and

complete the specification by curing errors", however, the amendments at the same time do "add

matter involving a departure from or an addition to the original specification" because the

amendments lack support in the original disclosure and are not obvious to one skilled in the

relevant art at the time of the invention.

16-2.   Applicants' argument (4) is not persuasive. Claims 9-13 are rejected under 35

U.S.C. 112, second paragraph, as detailed in sections **8** to **8-3** above.

16-3.   Applicants' argument (5) is not persuasive because the claims do not support Applicants'

argument. For example, "produces a result with a meaning that can indicate whether the move is

permissible and that can be utilized to allow the move" has not been claimed. Although the

claims are interpreted in light of the specification, limitations from the specification are not read

into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

16-4.   In response to Applicants' arguments (6) and (7) that the references fail to show certain

features of Applicants' invention, it is noted that the features upon which applicant relies (i.e.,

"model checking technique" or "model checking theorem") are not recited in the rejected claims.

Although the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir.

1993).

Conclusion

17.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

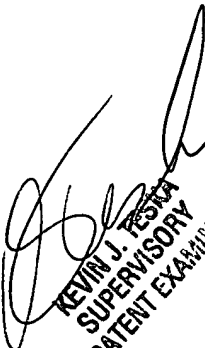policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

18.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Herng-der Day whose telephone number is (703) 305-5269. The

examiner can normally be reached on 9:00 - 17:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kevin J Teska can be reached on (703) 305-9704. The fax phone numbers for the

organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

Herng-der Day
February 5, 2004